

SERUM DDT IN MOTHERS AND EARLY MENOPAUSE IN DAUGHTERS : A FIFTY YEAR FOLLOW- UP OF THE CHILD HEALTH AND DEVELOPMENT STUDIES PREGNANCY COHORT

Barbara A. Cohn, *Public Health Institute, USA*

Piera M. Cirillo, *Public Health Institute, USA*

Nickilou Y. Krigbaum, *Public Health Institute, USA*

Julie D. Flom, *Columbia University, USA*

Heba Tawfik, *Columbia University, USA*

Mary Beth Terry, *Columbia University, USA*

Background and Aims: We report on the relation of DDT compounds measured in mothers' serum samples collected in the early postpartum to the menopause experience of 567 daughters an average of 43 years later.

Methods: Women were born between 1959 and 1967 near Oakland, California, USA, to mothers enrolled in the Child Health and Development Studies pregnancy cohort. Daughters completed an interview during 2005-2008 when they were ages 39-48 years (median age 43 years). We examined whether DDT exposure measured in serum samples collected from their mothers in the early postpartum predicted daughters' menopausal status at age 45 or younger, using a generalized linear model (logit link function), to account for siblings in the sample, adjusted for age at interview and birth year.

Results: Most women (73%) were pre-menopausal at the interview, 16% were peri-menopausal, 10% reported surgical menopause, 1% reported natural menopause, and 4% were unclassified. We observed higher risk of early menopause or peri-menopause in association with higher levels of *o, p'*-DDT in maternal serum (Relative Risk (RR) = 2.0, 95% Confidence Interval (CI)=1.3, 3.3, for 4th quartile vs. 1st quartile of maternal serum *o, p'*-DDT). In contrast, *p, p'*-DDT was protective (RR=0.5, 95%CI=0.3, 0.9, for the 4th quartile vs. the 1st quartile of maternal serum *p, p'*-DDT). Linear trends for each compound were significant ($p<0.02$).

Conclusions: Findings suggest that intrauterine life is a window of susceptibility for environmental influences on ovarian aging in humans. *o, p'*-DDT may be a protective risk factor for breast cancer via early ovarian senescence and *p, p'*-DDT may be a deleterious risk factor via later age at menopause. Findings are consistent with breast cancer associations that we previously reported for DDT compounds and mothers' risk of breast cancer in this cohort (Cohn et. al. 2007).

References: Cohn BA, Wolff MS, Cirillo P, Sholtz RI. DDT and Breast Cancer in Young Women: New Data on the Significance of Age at Exposure. *Environ Health Perspect.* October, 2007;115(10):1406-1414.